MARCH 2005

GIS . In The News

NEWS FROM THE CITY OF SALISBURY ◆ NORTH CAROLINA GIS COMMUNITY

VOL 4 NO 1

IN THIS ISSUE

GIS DIVISION NEWS

GIS Strategic Plan Completed

By Kathryn Clifton
City of Salisbury GIS Coordinator

The GIS Division is very happy to report that the GIS Strategic Plan for the City of Salisbury has been completed, and is now available online at http://gis.salisburync.gov. This plan represents an update to the previous plan written in fiscal year 2001-2002. An all-day workshop was conducted by Dr. Garry Cooper of Appalachian State University to identify GIS needs for the City over the next three to five years. Recognizing that local partnerships are important in the collection and development of data sets, individuals from Rowan County and other agencies were invited.

See **GIS Strategic Plan**, Page 4

USER UPDATE

City of Salisbury Set to Move to ArcGIS 9.x

By Kathryn Clifton
City of Salisbury GIS Coordinator

The City of Salisbury is poised to move to ArcGIS 9.x in the coming month. The product rolled in July 2004, but the GIS Division chose to take a cautious approach to its implementation. Indeed, three service packs have been released that include additional improvements and maintenance fixes, the most recent of which was posted on March 17, 2005.

City employees did get an opportunity to attend the ArcGIS 9.x rollout seminar in Raleigh, NC.

See related article on page 6, **ArcGIS 9 Rollout**, by Trey Cleaton. ◆

MORE GIS DIVISION NEWS

GIS Intern, a Great Return on Investment

Doug Burges
AppState Graduate

Doug Burges arrived on the scene May 17, 2004. Since then, he has been quietly going about helping to build the City's enterprise GIS database. What does that mean? It means he has been busy—reviewing addresses, collecting fire hydrant locations and attributes, and collecting points of discharge into receiving streams.

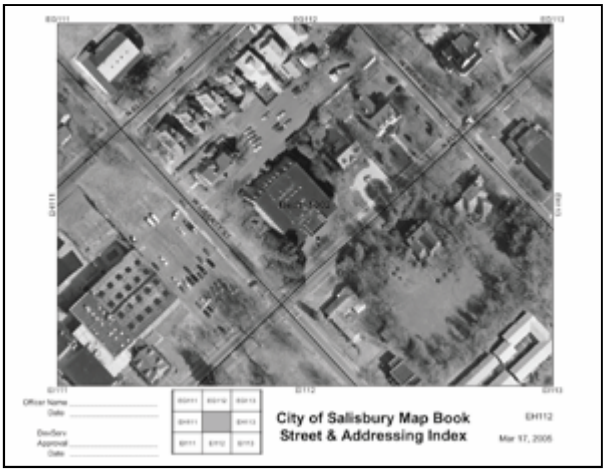
Addressing
In 2001, the mapping component of the Police Department's Visual CAD

See **GIS Intern**, Page 2

. . . GIS Intern *(from page 1)*

(Computer Aided Dispatch) "went live" (see related article, *GIS In the News Vol. 1, No 2)*. All address information was pulled from the street centerline data layer. When dispatchers received a call, the system instantaneously plotted the call on the map.

The point addressing project started in late 2003, when Police Officers were asked to help verify addresses inside the City limits to improve address matching. The Police Department was great to work with, and their hard efforts have really paid off—the number of addresses that do not match when a person contacts the Police Department requesting assistance has been significantly reduced. Also, plotted calls now appear directly on top of the structure, rather than at an estimated distance along the street. To date, over 9,500 addresses have been verified.



Police officers, equipped with mapbook pages, canvassed the City and collected actual physical addresses.

Fire Hydrant Data Collection

The location and information about fire hydrants is important to a number of departments across the City—most notably, the Fire Department and Salisbury-Rowan Utilities. Just what sort of information are these departments looking for when it comes to hydrants? Quite a bit—manufacturer, date of manufacture, the number and size of nozzles, the color the hydrant is painted (relates to estimated water pressure available), and the presence of a street valve– just to name a few. Over the course of only four months, Doug was able to collect nearly 1,700 fire hydrants. The majority of the work he completed independently, although on occasion he was accompanied by staff from the Fire Department or the GIS Division. Now that this information has made its way to the GIS enterprise database, it is available to numerous City employees with just a click of the mouse.

The potential for adding value to this initial data collection effort of fire hydrants through the implementation of a City-wide work order system is exciting. Imagine Salisbury-Rowan Utilities or Fire Department staff being able to pull up the complete maintenance and repair history on any hydrant in the system. Or, imagine Fire Department personnel being able to access important fire hydrant information while en route to a call.

NPDES Phase II Compliance

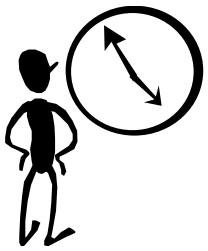
As a part of the National Pollutant Discharge Elimination System (NPDES) the City of Salisbury is required to conduct a physical survey of all receiving streams within the City and its extraterritorial jurisdiction over the course of a four year period. The City of Salisbury contracted with Bradshaw Consulting Services, Inc. of Aiken, SC to develop a custom ArcPad application to collect both points of discharge into receiving streams and associated pipes and/or ditches. The application development process was completed in a matter of six weeks.

Doug uses a Trimble GeoXT to collect the information, and then post-processes the data using PathFinder Office. Doug and staff of the Engineering Division have located and mapped points of discharge into the receiving stream known as Crane Creek as the first step in creating a comprehensive storm water system map.

For additional information about any of the projects mentioned in this article, please contact the GIS Division at 704-638-5246. Your questions and comments are welcomed. ◆

GIS CALENDAR

Don't Forget!



The GIS Users Group Meeting is scheduled for ***Thursday, April 21, 2005 at 9:00 AM*** at 100 West Innes Street (The Plaza) in the second floor conference room. As always, refreshments will be served.

See the online GIS calendar (http://gis.salisburync.gov/gis_calendar.asp) for additional important dates. ◆

GIS GEMS

If you're not going to be able to maintain it, don't bother creating it.

Information is more than data—it requires structure and consistency to be meaningful.

North Carolina GIS Conference a Great Success

By Trey Cleaton, Doug Burges and Kathryn Clifton
Salisbury-Rowan Utilities GIS Technician, GIS Intern and GIS Coordinator

The bi-annual NC GIS Conference was held in Winston-Salem, NC at the Benton Convention Center on March 3 and 4, 2005, and was attended by over 1,000 GIS professionals and students from across the Southeast. The conference was sponsored by the North Carolina Center for Geographic Information and Analysis (NCCGIA) and the Carolina Chapter of the Urban and Regional Information Systems Association (Carolina URISA). A post-conference webpage has been established to provide access to the presentations of conference speakers—visit the website at http://www.cgia.state.nc.us/ncgis2005/.

Representatives from the City of Salisbury and Rowan County were able to attend a number of the sessions, and Kathryn Clifton even served as a panelist on one session about NC OneMap. Their comments about sessions they attended are provided to give insight to other GIS Users about projects that are taking place across the State.

Doug Burges
Organizational Issues: Where's the GIS Shop?
GIS as a City/County Cooperative
Marcus Bryant, City of Durham

Due to its spatial nature, GIS data is not necessarily constrained to any arbitrary jurisdictional boundaries; thus making it difficult for municipal departments to fully utilize their analysis and GIS capabilities. The City of Durham and Durham County have a unique solution to this problem. They approach GIS cooperatively. The city and county officials jointly realize that GIS is a necessity that cannot be "short-changed". In order to budget adequate funds for GIS, the city and county of Durham each have a GIS budget they send to their city council and county commissioners, respectively. In addition to GIS, the city and county also mutually coordinate Inspections, 911 (which is funded by the phone surcharge), and Planning.

Marcus Bryant, the GIS Coordinator for the City of Durham, which facilitates the City/County GIS enterprise, spoke about the pros and cons of having the system held cooperatively. Having seamless county-wide data was the most overwhelming advantage. Moreover, the citizens and customers of Durham County have a one-stop-shop in which they can access this seamless county-wide data rather than trying to get data from two separate entities (as we all know this can be a headache). Marcus also spoke of how the GIS being housed in the city IT department worked to their advantage, namely because of decreased downtime and increased efficiency of the enterprise GIS.

Conversely, some issues do arise due to this organization. Coordinating with two IT departments as opposed to one can be troublesome and cumbersome. Setting the domains to ensure the integrity and security of the GIS data over two large, separate organizations can also be a cause for concern. Getting both the city council and county commissioners to approve funding for large projects, such as orthophotography, can cause some problems, but in the long run, the commitment both entities have to GIS has prevailed and funding has been appropriated better late than never.

NCGIS CONFERENCE: USER INSIGHT

By Trey Cleaton, Salisbury-Rowan Utilities GIS Technician

Being in Salisbury-Rowan Utilities Planning/GIS, of course Patrick Kennerly, Fred Mowery and I attended the Utilities Tract on the first day. Compared to what other cities are doing to manage their water and sewer networks, Salisbury ranks at the top, even with what high paid consultants are doing. It was interesting to see how, for instance, Greensboro and Winston-Salem used "quick and dirty" methods of data collection and system management. It is clear that Salisbury is in a class all its own when it comes to data collection standards and model building and management.

On a personal note, I was most looking forward to the GIS and the Community Economic Development tract during day two. GIS in economic development is still an emerging discipline, and it is interesting to see how people are applying the software. The City of Hickory used a progressive approach for identifying industry sectors that are both high growth and high wage for recruitment. With these sectors identified, more informed policy decisions can be made to help in their struggling economy's transition.

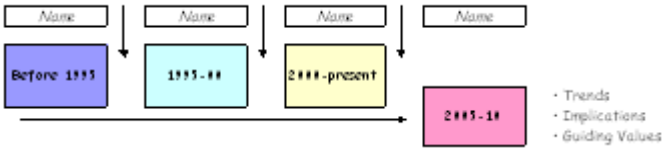
Also of importance, it was a great opportunity to see old friends and network with new people, while keeping on top of the latest technology application trends. ◆

See **NC GIS Conference**, Page 6

. . . GIS Strategic Plan *(from page 1)*

Participants consisted of staff from City of Salisbury and Rowan County—35 people participated, representing 8 departments.

The day-long workshop was broken down into three sessions. In the first session, participants identified important events over the years that shaped GIS at the City—on a personal level, at the local governmental and organizational level, and at the state and national governmental level. Also, three times periods were considered—before 1995, from 1995 to 2000, and from 2000 to the present time.



This graphic displays the timeline of where we have been with GIS, and where we hope to be in the future.

With such a large group, a very important part of the process during the course of the workshop was to identify guiding values that could have a positive influence in day-to-day decision making. Participants brainstormed about ideas relative to guiding values, and came to a consensus on eight. Dr. Cooper then challenged the participants to identify tangible ways to achieve their guiding values. They were certainly up to the task. They identified 41 GIS-specific projects, and grouped them into 4 clusters:

- Providing excellent customer service
- Providing information and services to customers that is timely and cost effective
- Actively participating in decision-making…at all levels of local government
- Partnering when possible to develop synergy
- Being both efficient and effective in operations
- Developing and maintaining accurate data
- Being goal-oriented…and achieving quality results
- Maximizing resources

Participants identified 8 guiding values that could have a positive influence in day-to-day decision making.

1. Collect, maintain, and display data
2. Utilize data analysis and modeling to make better decisions
3. Provide necessary resources
4. Implement GIS-based work order system

Lastly, participants prioritized their ideas by placing "sticky dots" on the projects that were most important to them and their division/department.

Actions plans were developed for ideas that were given highest priority by the participants. For each action plan, participants identified strengths, weaknesses, benefits and dangers relating to the current reality.

At the end of the day, participants were pleased with the results, and proud of the depth and breadth of information discussed at the meeting. Follow-up meetings will be a necessary part of realizing the ideas contained within the GIS Strategic Plan. The plan will exist as a dynamic document, with additions or modifications taking place to reflect changing conditions, priorities and implementation schedules.

SurveyMonkey.com
because knowledge is everything

If you are a person who is interested in using GIS within your division or department, please take a moment to complete an online survey.

What: an online survey (http://www.surveymonkey.com/s.asp?u=3789877726)

Who: Individuals who have an interest in the maintenance of existing and development of new GIS data layers

Why: Assist the GIS Division in allocating existing resources to information that will be of most use/benefit to the City as a whole

Your input regarding the importance of GIS data to your department and division are greatly appreciated. ◆

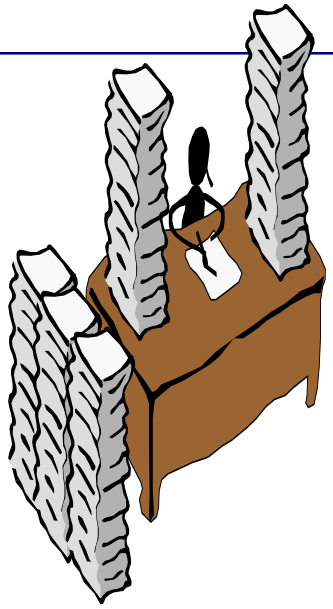
Thanks to all the participants who made the update of the GIS Strategic Plan possible!

For additional information about the GIS Strategic Plan, visit the GIS Division website at http://gis.salisburync.gov. Your questions, comments, and additional input are appreciated. ◆

USER INSIGHT

Dear GUS,

Dear GUS (GIS User Specialist) is a column that will address common questions that GIS users may encounter.



Dear GUS,
My ortho maps print very dark. How can I easily lighten them up?
Signed, In the Dark

Dear In the Dark,
If you are only having problems with the orthos in the background of your map printing too dark, then that is an easy fix. In ArcMap, right-click on the data layer that contains your orthos in the table of contents. Choose "Properties" from the context menu that pops up. When the Data Layer Properties dialog window appears, click on the Display tab. You should see an option to adjust the transparency of the data layer. Type 10 in the box, and ArcMap will adjust your orthos to print at 10% transparency. This should be enough, but if they are still too dark, try adjusting the transparency to a larger number. Adjusting the transparency for this layer will not have any affect on your other data layers.

Dear GUS,
I am having trouble printing large maps (34" x 44") using orthophotography on my plotter. I keep getting "out of memory" messages. Is there anything that I can do that will allow me to print these maps?
Signed, Aggravated ArcGIS User

Dear Aggravated ArcGIS User,
I feel your pain! I have run into this problem myself, and it always seemed to happen when someone was waiting for the map, or I had another tight deadline.

To fix your problem, you can try several things. The large map that you are trying to print with orthos is attempting to "spool" to the plotter and then print from there. You can change where the file is spooled to through the Printer Properties dialog window. On the Print dialog window, click the Properties button for the Windows Printer, then choose the Advanced tab. Select the "Avoid out of memory" radio button on the right under Document Processing. This will cause the document to spool to the hard drive on your computer.

Another alternative is available to you if you happen to have the ArcPress Extension for ArcMap. On the Print dialog window, click the Setup button for the printer and choose ArcPress Printer for the Printer Engine. ArcPress renders the map for high-quality output on a variety of printers.

Thanks for your great question! Keep them coming!

If you would like to submit a question to GUS, simply direct your e-mail to deargus@salisburync.gov. Or visit the Dear GUS webpage at http://gis.salisburync.gov/dear_gus.asp ◆

TRAINING OPPORTUNITIES

ArcGIS 9.x
Training is available for ArcGIS 9.x at the City of Salisbury Training Room **or on-site at your location. Note: Both Intro I & Intro II are now offered in Salisbury!**

Introduction to ArcGIS I is a two-day class intended to introduce individuals to ArcGIS and provide the foundation for using ArcGIS. The class covers basic GIS concepts, as well as how to create, edit, and maintain spatial data. This course is intended for those who are new to ArcGIS or to GIS in general.
Cost: $650 per person

Class dates for Intro to ArcGIS I:
May 19-20, 2005 9am—5pm

Introduction to ArcGIS II is a three-day class that focuses on spatial analysis, automation of spatial and attribute data, editing, and advanced options for cartographic display.
Cost: $1000 per person

Class dates for Intro to ArcGIS II:
April 25-27, 2005 8:45am—5pm

Class size is limited to twelve students. Please register two weeks in advance.

Contact Kathryn Clifton if you are interested in ArcGIS training.◆

USER INSIGHT

Comments & Suggestions Welcome

Your comments and suggestions for *GIS In the News* would be greatly appreciated. Also, if you have a question about GIS, its uses, software, etc. please submit them as well.

Just send an e-mail to Kathryn Clifton with the subject "GIS In the News". ◆

. . . NC GIS Conference *(from page 3)*

GIS in Information Technology
Steve Averett, Gaston, County

GIS is a tool that can be applied multi-disciplinarily across the board within municipal departments. So where does GIS belong? Essentially, GIS adept staff should be present in each department to use their editing and analysis capabilities to aid in the everyday functions of that department's duties. GIS should be present and practiced in Planning, Tax, Fire, Police, 911, Engineering, Public Services, Utilities, Economic Development, etc. But where do GIS tasks such as data maintenance, domain assignments, and network facilitation take place? GIS is imbedded in Planning or Tax in many municipalities, but what do those aforementioned technical tasks have to do with planning or tax? Not much. They are information technology or IT tasks; therefore many organizations have been moving their GIS headquarters into their IT departments.

Gaston County is an example of a municipality whose GIS evolved out of its tax department. Steve Averett was the GIS "go to guy" in Gaston County. His daily routine was becoming less and less about editing and analyzing the GIS tax data, and more and more about making sure the GIS machine ran as smoothly as possible. The problem came when the network crashed or permissions were denied and Steve didn't have the access into the IT system to fix them. Phone tag ensued, and problems persisted. Downtime and decreased efficiency were eating up municipal funds and tax payer dollars. Gaston County decided they had had enough and came up with a logical solution. Ship Steve and a few of the other GIS gurus, who had the techie chops, into the IT department, while still leaving GIS trained personnel in their respective departments.

Nevertheless, Steve explained that it wasn't all peachy down in IT. For example, it was much harder to do needs assessments of individual departments from their new "behind the scenes" locale. Furthermore, their individual roles became less visible, after all, as the saying goes in IT, "the better job you do, the less people know you're doing it". Steve also mentioned the increased pressure from some of the low-end users for GIS and technical assistance. These were the folks that no longer had that GIS crutch in their department anymore. The County Commissioners and upper-management also had an increased scrutiny over the real costs for GIS, now that it was isolated from tangible expenses, such as "tax parcel updates" or "planning mapping."

However, Steve explained the overwhelming advantages that having GIS in IT offered. Improved response time on IT issues, improved enterprise support, and the advanced skills development that they now had time to achieve were some of the most obvious results. Coordinating application development across multiple departments was a new task that GIS could handle. This eliminated redundancy in application development so that departments wouldn't contract consultants to develop applications, or similar, multi-functioning ones, that already were developed by other departments. Steve also mentioned that not having a bias towards a particular department is good for the county as a whole. IT is as neutral as it gets. Gaston County also made sure that they had GIS representation on the management team as a part of their restructuring. Coincidently, a salary appraisal was taking place within the county at the same time as the GIS shift, and allowed for the new GIS IT staff to get on the IT pay range level, thus rewarding these hard working individuals.

See related article (this issue, page 7) **Know Your Market: GIS and Economic Development** ◆

SEMINAR NOTES

ArcGIS 9 Rollout

By Trey Cleaton
Salisbury-Rowan Utilities GIS Technician

Business people, real estate specialists, university professors, analysts and technicians from around the region gathered at the Sheraton in Charlotte for the official release of ESRI's ArcGIS 9.0 software. The presentation was put together to highlight the latest improvements in the world's leading GIS software. The improvements are many, but here are the few that caught my attention the most. New capabilities within the ArcGIS desktop suite include a new Geoprocessing framework

See **ArcGIS 9 Rollout**, Page 7

. . . ArcGIS 9 Rollout *(from page 6)*

to analyze geographic data and solve problems through its Model Builder interface. This will surely be among one of the favored improvements because it will eliminate much of the labor involved in data processing. Another huge improvement is the annotation and labeling functionality within ArcMap. ESRI has also added a new extension by the name of Maplex to manage and generate high quality cartographic text placement within map layouts. For anyone who has worked with annotation and labeling in ArcGIS 8.X, this should be a much welcomed highlight. Finally, the software will include enhanced raster management and support through newly added tools and Geodatabase storage. These tools will allow for management, query and visualization of raster format data like never before.

Software extensions have been improved upon as well, the most impressive being ArcGIS 3D Analyst, which is renowned for its geographic visualization and modeling capabilities. The new title for the 3D analyst extension in the 9 release is ArcGlobe, an entire earth visualization tool that can be used to visualize and seamlessly integrate large amounts of data for presentations and analysis. I was most impressed with the new 3D symbology that can more realistically depict building facades, vegetation and even airplanes. Keeping pace with spatial analysis trends, ESRI added exploratory spatial analysis tools to its Geostatistical Analyst extension. These tools allow for the basic investigation into spatial relationships that exist among geographic objects, such as spatial dependence. These improvements are particularly important with the greater awareness of spatial relationships that exist within all social science and geographic data. After all, it's no secret that my home's appraisal value is affected by whether or not my neighbor has a Chevy on cinder blocks in their yard or a well maintained landscape. ESRI now offers the tools to measure this phenomenon.

The concept of a GIS infrastructure across enterprises is evolving with the concept of embedded GIS using ArcGIS Engine. These applications can be targeted to specific individuals within an organization to allow access to GIS data through a web browser without extensive training in using GIS Software. This opens up the possibility of everyone in an organization potentially using GIS to help with everyday processes. ArcGIS 9 also expands enterprise wide GIS through its ArcGIS Server. All GIS applications can be centrally hosted and accessed to users over networks. The key is the compatibility with numerous information system standard and technologies. The highlights, capabilities and implications of server-side GIS are far too numerous to mention here, but the most important and exciting concept in all this is the potential of entire local governments to utilize centrally-managed GIS databases in everyday work environments. ◆

Know Your Market: GIS and Economic Development

By Doug Burges, GIS Intern

Info Map: Redefining Economic Development in the Upstate with Web-Mapping
Carol Anderson, Appalachian (SC) COG

Municipalities and municipal economic development commissions wish to instill a higher quality of life for their community by attracting development. But the really desirable development doesn't always coming knocking on your door. In many cases, site analysts for large corporations or development firms have a set of criteria that must be met for them in order to select a site (i.e., proximity to an interstate, water/sewer, large contiguous parcel, etc). They sit in their sky rise offices or luxury hotel rooms and scan the web looking for the appropriate matches, and if your municipality doesn't have a readily available engine to deliver the data they desire, then you're simply marked off the list.

That's were ESRI's ArcIMS (Internet Mapping Server) technology comes in. ArcIMS is the engine to deliver this data. It allowed one such economic development commission, the South Carolina Appalachian Council of Governments (ACOG), to put an innovative web-based mapping and fact finder application online for the general public to consume. The ACOG makes up a 10 county region in upstate western South Carolina. InfoMap is what their custom ArcIMS server is called which was funded by a grant from the Economic Development Authority.

InfoMap allows developers and decision-makers from around the globe to run detailed searches on demographics and property and parcel information. Some of the layers that are available for consumption include industrial properties, existing industries, county and municipal boundaries, census features, water bodies, transportation infrastructure, topographic data, and traffic counts. InfoMentum is the greater website (not just the GIS-map based interface) that is linked to census and American Fact Finder data. This interactive, enterprise tool allows developers and corporate decision-makers the ability to manipulate and print maps and associated attribute and census data through an easy interface via the internet.

Visit the InfoMentum website: http://www.infomentum.org ◆

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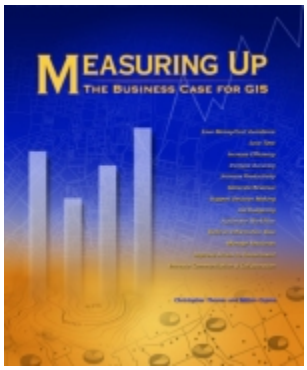
Class size is limited to twelve students. The instructor must have at least two weeks' notice prior to the date you would like to receive training so that adequate manuals, etc. can be ordered.

Contact Kathryn Clifton if you are interested in ArcGIS training.◆

GIS EFFICIENCY SPOTLIGHT



Midwest Town Boosts Financial Standing

City of Westerville, Ohio
By Doug Burges
City of Salisbury GIS Intern

Westerville is a suburb of the bustling Ohio capitol city, Columbus. Its population is around 35,000 and growing. Not unlike Salisbury, the added pressures of growth have pushed the city's government onto a technology fast track which streamlines and maximizes their service delivery. They have found that an enterprise GIS is the engine that can drive this process and is directly responsible for most of their revamped business procedures.

So, when the city manager and finance director needed property information for two primary investor services they turned to the GIS department. The primary investor would be rating the risk factor for people and institutions that were likely to invest in Westerville's public agencies. They needed to get information together on the economy, debt structure, financial condition, demographics, and management practices in order to prepare a municipal bond upgrade. The GIS department coordinated four of Westerville's city divisions across three departments and compiled the data needed for the municipal bond upgrade. In fact, they were able to access all of the requested information, plus additional information on undeveloped land that was ready for development, in ninety minutes.

Westerville ended up getting the improved bond rating, which in turn lowered their interest rate 1.27 percent, and will equate to over 1 million dollars in savings over twenty years. Westerville's GIS manager Todd Jackson boasted that "Finance and Accounting are usually not included on the list of five or ten departments using GIS, but they should be." He goes on to say that this example "dispels the myth that GIS is only a mapmaking tool," but argues that GIS is an enterprise wide tool which can be applied to departments across the board and in fact is the glue that holds them together. And it can even save you money.

Based on an article published in *Measuring Up: The Business Case for GIS*, by Christopher Thomas and Milton Ospina of the ESRI Press, 2004.

If you want to read more about how GIS can:

- *save* your organization money and time,
- *increase* your efficiency, accuracy, and productivity,
- *support* decision making,
- *manage* resources,
- *aid* budgeting, *generate* revenue,
- *automate* workflow,
- *build* an information base,
- *improve* the access to government, and
- *strengthen* communication, and collaboration

...contact Kathryn Clifton (704-638-5246, katclif@salisburync.gov) of the GIS Division for a copy of *Measuring Up: The Business Case for GIS*. ◆

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